

JONES DAY

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October 14, 2019

BY ELECTRONIC DELIVERY

Marlene H. Dortch
Secretary
Federal Communications Commission
445 12th Street S.W.
Washington D.C. 20554

**Re: Permitted Oral *Ex Parte* Notice
Wireless E911 Location Accuracy Requirements
PS Docket No. 07-114**

Dear Ms. Dortch:

On October 10, 2019, representatives of NextNav, LLC (“NextNav”) participated in separate meetings with Umair Javed, legal advisor to Commissioner Rosenworcel; Erin McGrath, legal advisor to Commissioner O’Rielly; Joseph Calascione, legal advisor to Commissioner Carr; and Randy Clarke, legal advisor to Commissioner Starks. Participating in the meetings on behalf of NextNav were Gary Parsons, Chairman; Bruce Cox, Senior Director, Regulatory & Public Safety; and the undersigned. Ganesh Pattabiraman, NextNav’s CEO and Co-Founder, also participated by telephone in the meetings with Clarke and McGrath.

The primary purpose of the meetings was to introduce the NextNav location technology to several of the legal advisors and to discuss with the highly accurate capabilities that have been demonstrated in identifying the vertical location of wireless callers inside large buildings. The parties also discussed the evolution of the Commission’s wireless location proceeding, including its more recent focus on vertical location requirements. In particular, NextNav noted the numerous proceedings and independent test beds that have assessed vertical location capabilities over the years following NextNav’s initial demonstration of the technology in November, 2012 during the independent CSRIC III testbed in San Francisco.

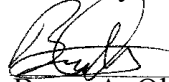
The NextNav representatives emphasized that, based on the extensive record the Commission has developed over the years on the critical public safety need for a vertical location requirement, and the demonstrated capabilities of location service vendors to reliably provide highly accurate vertical location information, the Commission should promptly adopt a wireless vertical location requirement of +/-3 meters for 80% of wireless calls from z-axis capable handsets. The adoption of a 3 meter metric is important because it effectively provides the correct floor level altitude of the caller’s location.

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Further, it was noted that NextNav's technology is already capable of exceeding a 3 meter requirement, having demonstrated 1.8 meter accuracy for 80 percent of calls in the most recent industry led testbed¹ and NextNav continues to improve its technology.²

The attached presentation was distributed during most of the meetings and formed the basis for the discussion. Please contact the undersigned if you have any questions about this matter.

Sincerely,

A handwritten signature in black ink, appearing to read "Bruce A. Olcott", written over a horizontal line.

Bruce A. Olcott

¹ See *Report on Stage Z, 911 Location Test Bed, LLC PS Docket 07-114*, at 120 (Aug. 3, 2018).

² See, e.g., Letter from Brandon W. Allen, Manager, Government Relations, International Association of Fire Chiefs, to Ms. Marlene H. Dortch, Secretary, Federal Communications Commission, PS Docket 07-114, *et al.*, at 1 (Sept. 24, 2019) (explaining that “given the ongoing advancement of location accuracy solutions, the FCC might consider narrowing the z-axis metric in five years’ time and narrow the x/y metric”).

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NextNav, LLC

Position, Navigation and Timing Services

October 2019

Metropolitan Beacon System (“MBS”)

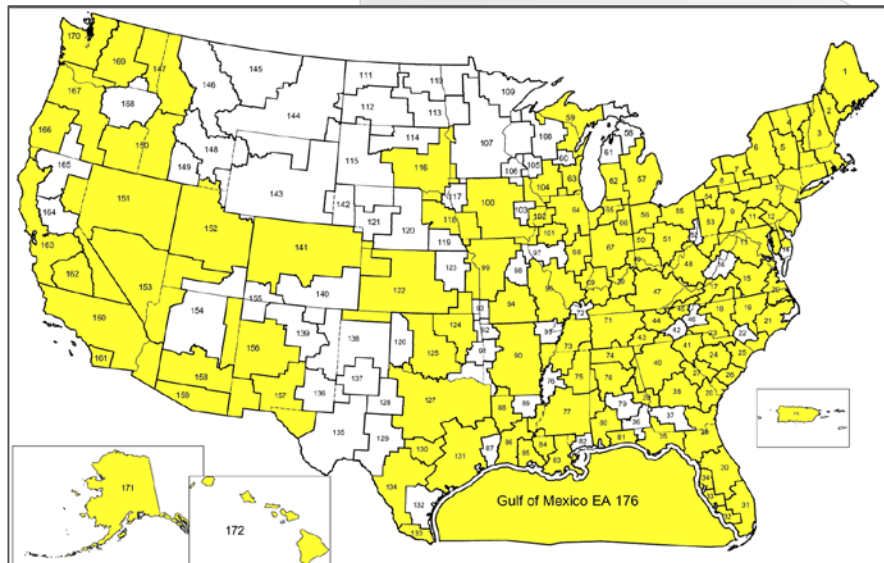


- Overlay network dedicated to PNT (X,Y & Z axis, time), with unique, proven floor-level vertical and horizontal accuracy
- Wide-area coverage with unlimited capacity – can cover an entire metro with fraction of a typical cellular build
- Long-range, low-cost broadcast beacons placed on cell towers and rooftops – not building specific
 - Similar to GPS serves all applications
- Deployed and managed to deliver ‘Mission Critical’ location with multi-layer reliability
 - Network & Beacon redundancy
 - Battery backup to ensure continuity during power outage
 - Encrypted Signal
- Designed to be integrated into Mass Market Devices
- Proven “best in class” in various CTIA/ATIS, FCC-sponsored trials

MBS is essentially a network of low-cost terrestrial “satellites” broadcasting from roof-tops and towers

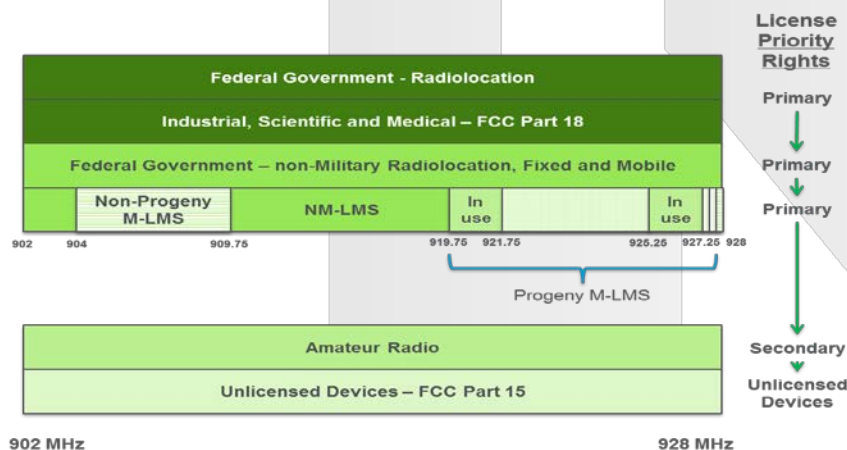
M-LMS Spectrum

Licensed Spectrum



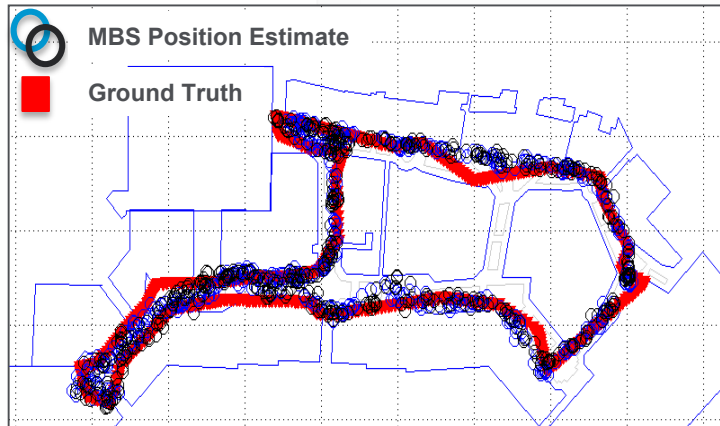
Spectrum Characteristics

- NextNav/Progeny holds approximately 93% of nationwide footprint and 95% of Urbanized Pops in 919.75-927.75 MHz
- Spectrum was approved by Commission for Commercial operation in June 2013
- Due to terrestrial nature, signal operates at a much higher signal power
- Upper portion of band relatively quieter than mid band and lower portion of band
- MBS signal is highly repetitive from multiple beacons, ensuring reception even if brief interference
- MBS signal causes minimal impact to Part 15 devices due to short duty cycle
- No significant complaints from other spectrum users since initial operations in 2011



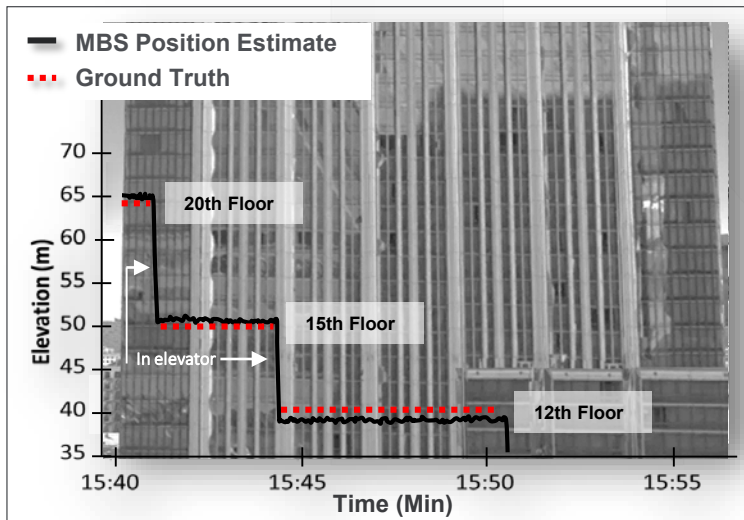
MBS Indoor Positioning & Navigation

Accurate Horizontal (X-Y) Tracking

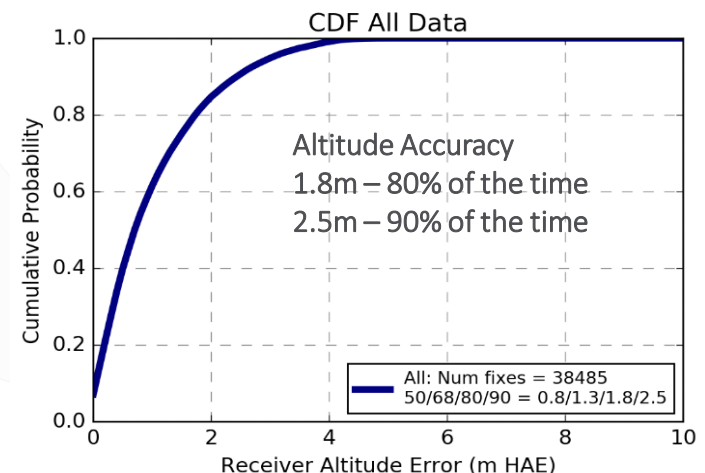


- Delivers floor level (< 3m) vertical position (floor level) and accurate horizontal position (<10m)
- MBS signal provides location and navigation in coverage areas within its footprint
 - No building specific information required
- Wide area system functions reliably across metro

Reliable Floor-Level Altitude (Z) Tracking



Vertical CDF Results based on latest CTIA Z-Axis Testbed



Vertical Location Rule – FCC Development

FCC says wireless location rules should include vertical data. – NPRM, 1994

FCC proposes to require vertical data within 40 meters – FNPRM, Sept. 1996

NextNav demonstrates within 3 meter accuracy in CSRIC testing – CSRIC III Report, March 2013

FCC seeks comment on technical feasibility of vertical rule – FNPRM, Sept. 2010

Public safety describes “floor level” vertical data as valuable in urban conditions – CSRIC III Report, March 2013

Improved NextNav technology meets within 2 meter accuracy – NextNav ex parte Aug. 2013

FCC unanimously proposes 3 meter vertical accuracy by 2020 – 3rd FNPRM, Feb. 2014

Public safety calls vertical location data “imperative” – FCC E911 Workshop, Nov. 2013

NextNav again demonstrates within 2 meter vertical accuracy – Stage 2 test bed, Fall 2016

FCC adopts vertical location rule, confirms 3 meters is necessary, but does not set metric – 4th R&O, Feb. 2015

Carriers propose 5 meter metric, which public safety rejects – CTIA Letter, Aug. 2018

NextNav demonstrates within 1.8 meter vertical accuracy – Stage 2 Report, Aug. 2018

FCC again proposes 3 meter vertical location metric – 4th FNPRM, March 2019

Public safety reaffirms need for “true floor level accuracy, i.e., no more than 3 meters” – IAFF Comments, Oct. 2018